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# Emerging Markets and Currency Exposure:

# Firm Performance Analysis in Mozambique.

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**Abstract**

This paper conducts a firm-level analysis of the impact of the exchange rate depreciation of Mozambican Metical (MZN) to South African Rand (ZAR), Dollar (USD) and Euro (EUR) on investment. The analysis makes a comparison between domestically and foreign-owned companies given the Mozambican business environment with access to credit particularly constrained, the Stock Exchange still in a development phase, and the lack of ability in implementing effective hedging techniques. I expect foreign-owned firms to perform better when compared to the domestic companies in terms of profitability and efficiency, which would be explained by the greater parent companies' ability to face general exposures and currency risk in particular.

Keywords: emerging markets, currency risk, foreign-owned firms, Mozambique

## 1. Introduction

The purpose of this study is to determine whether foreign-owned companies are more capable of overcoming sharp fluctuations of Mozambican Metical (MZN) against foreign currencies that are commonly used by firms in Mozambique: South African Rand (ZAR), Dollar (USD) and Euro (EU). Companies with foreign shareholders should have better access to finance, know-how, management skills to limit risk exposure. Especially since obtaining credit in Mozambique is very expensive, there are only few companies listed in the Maputo Stock exchange and managers' lack of expertise to apply considerable hedging strategies. Nevertheless, in the light of research findings, there is no robust evidence of a correlation between depreciation scenario and

type of ownership, though one can notice the slightly better performance of foreign-owned firms referred to certain T-tests, in terms of profitability and net working capital turnover, compared to domestic ones. Moreover, when excluding the ownership characteristic, the major finding is the negative impact of Metical devaluation with respect to Dollar and Euro on firm-level investments that gives a sense of the economic magnitude in the regression.

The determinants and effects of the exchange rate fluctuation are subject of investigation in the financial literature, particularly from a macroeconomic point of view. However, looking at firm-level studies, these studies focus mostly on the impact of the exchange rate fluctuation for export companies (Aw and Hwang (1995) Bernard and Jensen (1999)). Moreover, research has been done mainly considering exchange fluctuation alongside trade finance and credit conditions during the 2008 crisis, (Chor and Manova, 2010 and Manova, 2013). Whereas, the investment response to exchange rate fluctuations on a firm-level panel conducted by Nucci and Pozzolo (1999) shows how investments of firms with low mark-ups react with greater force to the exchange rate fluctuation. Considering also credit constraints and the hedging opportunity against exchange rate risk as factors reinforcing the link between low mark-ups and sensitivity to exchange rates.

Forbes (2002) conducted a study on a firm-level impact of the depreciation of over 13,500 companies across 42 countries, the evaluation has been made in terms of sales and net income firm performance, immediately after the depreciation, whereas in a long-term view the object of the analysis is the change in market capitalization and asset value. A year after the depreciation the major findings on average are higher growth in market capitalization and lower

growth in net income, measured in local currency. These results would suggest that depreciation increase the present value of firms expected future profits and despite likely long-run benefits, the immediate impact of the depreciation may be negative. Moving on previous assessments that make a distinction between multinational and domestic companies in a currency devaluation context, Desai et al. (2007) examined the difference performance between American multinationals and local firms in emerging markets during a devaluation. By doing that, with special attention to the market product exposure and financial capabilities of these firms, which might be a reasonable explanation for the different response to currency shocks. It turns out that in the aftermath of depreciation, US affiliate multinational firms expand their operating activity compared to the local firms, which present a decrease in sales, assets, and investment or do not make any type of change. Their main result is that multinational affiliates' response to depreciation outperform local firms' one and is well explained by their ability to overcome financing constraints. Moreover, an undervalued effect came to light, namely the importance of internal capital markets to multinational firms as a foreign direct investment (FDI).

Another relevant aspect when facing currency exposure is the balance sheet effect. One can find the analysis of this effect in Kim (2016), the work focuses on the negative shock of depreciation to the net worth of firms holding foreign currency-denominated debt in their balance sheets, as there will be an increase in the domestic currency value of foreign debt. This negative effect results in a higher cost of external financing, and therefore it reduces investment opportunities for firms.

When it comes to Emerging Markets, a firm-level analysis related to the effect of currency depreciation has been done on Indonesian importer companies, making a distinction between foreign-owned importers and domestic-owned ones, (Sharma, 2016). The result of the study shows greater management, following a sudden increase in the cost of imports, by foreign-owned companies compared to domestic ones. Therefore, this study does not present an increase in capital stock or investment, but in the use of variable inputs, leading to the conclusion that foreign firms use the additional external sources of finance to meet working capital requirements.

This research wants to be embedded in the currency exposure framework. More specifically, will conduct a firm-level analysis in an emerging market, Mozambique. Unlike the vast majority of the papers, it will examine a most recent time frame, which goes from 2009 to 2017. However, the aim is to showcase the impact of currency exposures to Mozambican firms according to the nature of their ownership, size, and sector, considering all the features of the Mozambican business environment. Bearing in mind that Mozambique businesses do not apply sophisticated financial practices, especially in terms of risk management, whose function is not clear to those managing that specific area. In fact, the use of hedging against currency risk is unusual, given also the absence of a developed derivative market.

Furthermore, most of the companies are financed by equity capital as the interest rates and requirements to borrow money from banks are excessively high. I chose to examine the exchange rate depreciation of Mozambican Metical (MZN) to South African Rand (ZAR) and Euro (EU). Since the former refers to one of its major import and export partners and the latter is the value of important

European countries in terms of trade, such as the Netherlands. However, given the main role of United States Dollar (USD) as currency, the samples are also compared to it.

## 2. Data and methodology

The firm-level accounting data, along with information linked to financial practices, underlying this analysis are the result of my experience in Maputo (Mozambique) during the last stage of the project: 'Financial Literacy of Managers and the Efficiency of Capital Allocation in Corporations', (Custódio, Mendes and Metzger, 2015-2018). Our research team has collected data over the last three years, covering more than 100 companies. This includes survey data and financial statements documentation. During the last phase of this project, we interviewed managers and collected the accounting data of over 50 companies directly from the firms. I had the opportunity to build the datasets based on quality and quantity information we have gathered. In addition, we rely on data issued by KPMG, merged manually to our dataset. KPMG publishes an annual report that covers 'The Top 100 Companies in Mozambique' from 2009 to 2017, which shows fewer accounting items compared to those we requested from the companies as part of the research project, but it is an important measure to have an overview of the results regarding the top companies in Mozambique. For instance, KPMG does not report any measure related to the ownership shares of the firms, which is a feature that plays a main role within this research.

This is the reason why I conducted analysis and run several regressions for three samples (Sample A, B and C) in order to have greater robustness about the results obtained, given that there are no similar studies in Mozambique to compare with, and the transmission of financial data through this process cannot

be totally reliable due to the absence of databases such as Bloomberg, where to have access to accounting information with a lower room for human error.

'Sample A' is the richest one, having around 981 observations for 216 different firms, coinciding to the best companies listed by KPMG from 2009 to 2017. This first analysis aims at giving a glimpse of the business environment in Mozambique with regard to main financial ratios related to profitability, efficiency and solvency aspects, relying on a large number of observations across different sectors. Nevertheless, there is a limitation in this sample due to the absence of cash holdings, specific financial items such as long and short debt and the origin of ownership shares. Therefore, I created a subsample, 'Sample B', including only those firms whose ownership origin is known and that are present in KPMG reports, which are in total 39 with the same time period. This additional information, including the share percentage and country origin of shareholders, is taken from surveys run among managers in May 2017 and November 2018 during the Executive Programme of the project conduct in Maputo, Mozambique.

Last, 'Sample C' shows 34 firms with a shorter lapse of time from 2013 to 2017, for which I have a complete set of accounting items from the balance sheet and income statement, and provide more consistency in the analysis since it is dealing with the same firms across the years. This allows me to examine the company financials more deeply and distinguish between foreign and domestic ownership shareholders to determine statistically significant correlations among firms with these characteristics. An overview of the samples is illustrated in Appendix 1.

Considering the measure of the currency risk, I took the monthly exchange rates (Bloomberg) and subsequently estimated the annual average per each year, in relation to the currencies under examination. Next, given the fluctuation of the MZN (Figure 1), the effect of which is the subject of this study, I calculated the percent changes in the exchange rate from year to year compared to each currency in the 2007 to 2017 time frame (Appendix 2). In the interest of measuring the performance among companies, I computed several financial ratios covering profitability, efficiency, and solvency areas. However, there are few cases of companies with very negative results, the reason why the medium instead of the mean is taken into consideration is to avoid affecting negatively the overall analysis.

**Figure 1** - Fluctuations Metical 2013-2017


The statistical method used to analyze the samples is Ordinary Least Square (OLS), several regressions are run having as dependent variable a performance measure, and in the end, the most significant is new investments realized over assets. The analysis is performed on Stata, therefore, the data needed to be processed properly in Excel in order to work smoothly. On the right-hand side, the independent variables are the exchange rate, industry

dummy variables (to absorb industry effects), size, and origin of the ownership. Furthermore, t-tests are conducted within the samples divided by year and ownership to compare the difference between means. In addition, a 5% significance level is established to define if there is any relationship between variables. As mentioned above, dummy variables are created to measure the qualitative effect on the dependent variable, in terms of qualitative specifications of the firms under examination, the binary variables refer to size, ownership type, and sector categories and the years when a depreciation occurred. For the division by size was used the national criterion of classification of companies prescribed in Decree no. 70/2009 of 22 December (Appendix 3) and an adjusted criterion for Sample C, since the number of employees' information was missing for many companies, only total assets and net income are considered. Finally, there are some specifications for the interaction dummy variables to test whether there are significant differences between sectors for the effect of depreciation on the firm performance indicator.

## 3. Analysis of the business environment in Mozambique

The main research question of this work project is whether foreign-owned companies are better off in terms of performance in the aftermath of a Metical's sharp depreciation and to what extent there is any relationship with the size and sector firm characteristics. However, I expect foreign-owned companies to have better results compared to those with domestic ownership. On the other hand, taking into consideration the import and export trade, one has to bear in mind the import and export situation in Mozambique, namely the three major export partners are India, South Africa, and the Netherlands. Moving to the

import side, there is South Africa, United Arab Emirates, China and, once more, the Netherland and India are main players, alongside Portugal according to the United Nations COMTRADE database on international trade. Therefore, this breakdown explains the choice of studying the effect of the depreciation on the ZAR and EUR currencies. Moreover, a further significant aspect to look at is the type of sector to be more involved in export and import trading. Mineral fuels, oils, distillation products, aluminum, and tobacco are the major export categories, whereas on the import side the exact same industries, with the exception of tobacco and with important sectors such machinery, nuclear reactors, and cereals.

Concerning severe depreciation of the Metical during the last decade, in particular, the year 2009, 2010, 2015, and 2016 are those with the strongest change compared to their previous year in terms of devaluation. 2016 has been the most critical year, when the Metical lost more than 58% of its value against the Dollar and Euro, while compared to the South African Rand the loss is around 43%. The 2016 annual average of USD/MZN, EUR/MZN, ZAR/MZN reached tremendous highs of 63.64, 70.16 and 4.42. Thus, this information mentioned above has been substantial over the course of the analysis.

The financial analysis shows a reduction of the return on assets across the three samples during the year 2010 and 2016 (Appendix 4). Also, the medium of the number of employees decreases, whereas the current ratio and the debt to total asset ratio increase in 2016. Splitting the financial ratios between foreign and domestic ownership, the result is unexpected as the domestic companies outperform, in terms of profitability, foreign-owned firms in the year of the most devaluation (2010 and 2016), unlike the other years.

## 4. Empirical results

Moving to the regression analysis, in the initial sample (Sample A), I found significance in explaining the change in new investments with the depreciation of the Metical.

$$NEW\ INVESTMENTS_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon_i$$

The multiple regression as that one above is used in order to verify the hypothesis. The dependent variable is new investment realized by the companies over assets and $X_1$ represents the scenario of a depreciation of the Metical against the foreign currency, $X_2$ is the agriculture sector, $X_3$indicates the commerce category and $X_4$ the transportation one.

Table 1 shows the outcome of the three models used to explain the logarithm of the new investments, i.e., the logarithm of the ratio of new investments over total assets, realized by the companies in a period of devaluation against ZAR, USD, and EUR. The independent dummy variables seem to explain the change in new investments, the devaluation of USD is statistically significant at a significance level of 5%. In practice, this means that new investments are negatively related to the Dollar depreciation scenario, whereas one can see a positive correlation with the agriculture, commerce, transportation sectors, besides small and medium-sized firms. At a significance level of 10%, the depreciation of EUR on the dependent variable is meaningful. However, this result is ignoring the ownership type and gives an overview of the new investments regarding the best companies in Mozambique. Considering the

industries, the overall significance of the model was evaluated (Appendix 5), therefore, only agriculture, commerce, and transportation are significant and indicate a positive correlation with new investments.

**Table 1** - Sample A, Regression on new investments over total assets

| Dependent Variable<br>New Investments | (1)<br>ZAR/MZN | (2)<br>USD/MZN | (3)<br>EUR/MZN |
|---|---|---|---|
| Depreciation ZAR/MZN | 0.0602 | | |
| | (0.260) | | |
| Agriculture sector | 1.355*** | 1.375*** | 1.331*** |
| | (0.259) | (0.252) | (0.250) |
| Commerce sector | 0.858*** | 0.840** | 0.833** |
| | (0.325) | (0.327) | (0.328) |
| Transportation sector | 1.127*** | 1.159*** | 1.122*** |
| | (0.373) | (0.368) | (0.367) |
| Medium sized firms | 2.451*** | 2.547*** | 2.491*** |
| | (0.372) | (0.356) | (0.367) |
| Small sized firms | 4.951*** | 5.070*** | 4.967*** |
| | (0.446) | (0.432) | (0.441) |
| Depreciation USD/MZN | | -0.609** | |
| | | (0.276) | |
| Depreciation EUR/MZN | | | -0.493* |
| | | | (0.298) |
| Constant | -10.01*** | -9.616*** | -9.581*** |
| | (0.363) | (0.366) | (0.383) |
| Observations | 294 | 294 | 294 |
| R-squared | 0.332 | 0.342 | 0.336 |

Regarding Sample B, Appendix 6 displays a significant t-test (H>0) between foreign and domestic means of return on assets, return on equity and net margin for the year 2013, which is the year where depreciation against Dollar and Euro become, following two years of strong appreciation of the Metical. The same logic and results apply to the year 2014, except for the net margin. Another meaningful outcome in the t-tests concerns the return on assets in 2015 and the return on equity in 2017, which are larger for the foreign-owned companies prior to and after the toughest depreciation of the Metical.

This might suggest that foreign shareholders take action after strong appreciation and depreciation periods. However, the overall model on new

investments (Appendix 7) leads to find significance in the foreign characteristic to explain the dependent variable, as domestic ownership is negatively correlated with new investments as well as the devaluation against ZAR and EUR. Nevertheless, there is no significance in the interaction of foreign and depreciation characteristic. Considering the logarithm of working capital turnover as the dependent variable, one can see that the devaluation, the type of ownership and their interactions are simultaneously insignificant (Table 2).

**Table 2** - Sample B, Regression on net working capital turnover

| Dependent Variable<br>Net Working Capital Turnover | (1)<br>ZAR/MZN | (2)<br>USD/MZN | (3)<br>EUR/MZN |
|---|---|---|---|
| Depreciation ZAR/MZN | 0.152 | | |
| | (0.263) | | |
| Domestically-owned firms | 0.0966 | -0.0444 | -0.00598 |
| | (0.264) | (0.351) | (0.390) |
| Depreciation ZAR/MZN* Domestically-owned firms | -0.124 | | |
| | (0.360) | | |
| Hospitality sector | 1.860*** | 1.864*** | 1.859*** |
| | (0.237) | (0.239) | (0.233) |
| Commerce sector | -0.618*** | -0.613*** | -0.620*** |
| | (0.228) | (0.227) | (0.227) |
| Construction sector | -0.830** | -0.839** | -0.845** |
| | (0.368) | (0.353) | (0.353) |
| Services sector | -1.367*** | -1.360*** | -1.373*** |
| | (0.313) | (0.312) | (0.313) |
| Transportation sector | -0.623* | -0.629* | -0.627* |
| | (0.318) | (0.322) | (0.323) |
| Small sized firms | -2.111*** | -2.106*** | -2.112*** |
| | (0.232) | (0.230) | (0.232) |
| Depreciation USD/MZN | | -0.0852 | |
| | | (0.278) | |
| Depreciation USD/MZN *Domestically-owned firms | | 0.110 | |
| | | (0.392) | |
| Depreciation EUR/MZN | | | 0.0634 |
| | | | (0.287) |
| Depreciation EUR/MZN *Domestically-owned firms | | | 0.0493 |
| | | | (0.420) |
| Constant | 14.64*** | 14.78*** | 14.68*** |
| | (0.199) | (0.253) | (0.271) |
| Observations | 210 | 210 | 210 |
| R-squared | 0.554 | 0.554 | 0.554 |

Moreover, most of the sectors, domestic ownership, and small-sized firms categories are meaningful and have a negative relationship with the working capital turnover. In addition, the hospitality sector seems to be the only

one to be positively correlated with the management of working capital. One might explain this positive relationship by the fact that the domestic tourist industry usually benefits from a devaluation of the domestic currency, as foreigners find Mozambique more attractive.

When it comes to Sample C, which has more consistency in terms of data, there is a lack of significance once comparing differences within means for relevant ratios. In addition, running regressions and including interactions between industry and ownership does not show meaningful results connected to the devaluation of the domestic currency effect on the dependent variables.

## 5. Conclusions

This study shows that there are no substantial differences between foreign and domestically-owned firms in a devaluation context. There is minor evidence of better profitability performance of companies with foreign shareholders when looking at the differential of means, but this is not detected by the regression analysis. However, little statistical evidence is found in crucial years for the value of the Metical, whereas since 2016 is hard to come up with considerable results. A reasonable explanation can be related to the suspension of the International Monetary Fund and foreign donors support since 2016, after admitting more than 1.2 billion of previously undisclosed debt. Bearing in mind that already in the year 2015 the Foreign direct investment (FDI) slowed down as reported by KPMG. Hence, these can be the reasons behind the overall analysis. Nevertheless, foreign investment has shifted, during 2017 and 2018 FDI has experienced significant growth, especially in the industry and energy

sector as Mozambique is going to become a major worldwide gas supplier, given the considerable natural resources present across the country.

Therefore, further research can be conducted after the slow devaluation of the Metical during 2018 in a different scenario compared to the year 2016, where Mozambique was facing a governance crisis without foreign funding, the decline in the commodity prices, the rise in interest rates and the upward trend of the prices. The outlook for 2019 forecast economic growth and certain stability of macro factors, besides the increase in FDI. Although it is going to be a moderate growth given that the country is trying to recover for the loss of credibility after the critical 2016 scandal. Moreover, considering the characteristic of Mozambique, it would be interesting to further study whether there are differences in performance among domestic, foreign and government-owned firms differentiating between export and import companies.

# Appendix

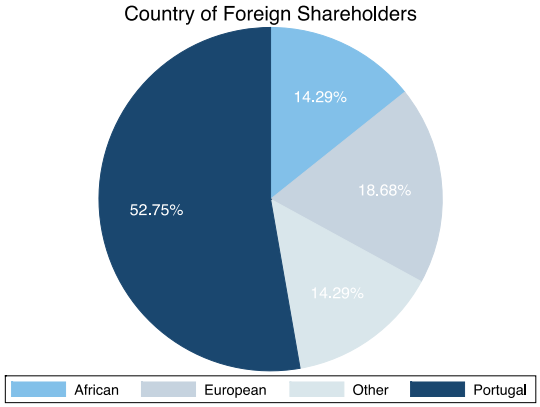
## **Appendix 1** - Overview Sample A, B and C

### Sample A

| Sector | Frequency | % |
|---|---|---|
| Hospitality | 28 | 2.85 |
| Communications | 37 | 3.7 |
| Agriculture | 23 | 2.3 |
| Commerce | 211 | 21.50 |
| Construction | 61 | 6.22 |
| Financial Services | 162 | 16.51 |
| Industry | 138 | 14.07 |
| Services | 171 | 17.43 |
| Transportation | 150 | 15.29 |
| Total | 981 | 100 |
| *N* | 981 | |

| Size | Frequency | % |
|---|---|---|
| large | 54 | 5.50 |
| medium | 631 | 64.32 |
| small | 296 | 30.17 |
| Total | 981 | 100 |
| *N* | 981 | |

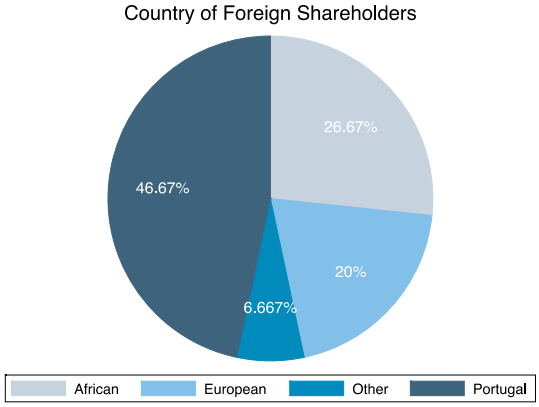
### Sample B




| Firm Type | Frequency | % |
|---|---|---|
| **Large** | | |
| Foreign | 6 | 2.83 |
| Domestic | 8 | 3.77 |
| Total | 14 | 6.60 |
| **Medium** | | |
| Foreign | 55 | 25.94 |
| Domestic | 68 | 32.08 |
| Total | 123 | 58.02 |
| **Small** | | |
| Foreign | 39 | 18.40 |
| Domestic | 36 | 16.98 |
| Total | 75 | 35.38 |
| Total | | |
| Foreign | 100 | 47.17 |
| Domestic | 112 | 52.83 |
| Total | 212 | 100 |
| *N* | 212 | |

| Sector | Frequency | % |
|---|---|---|
| Hospitality | 1 | .47 |
| Communications | 15 | 7.08 |
| Commerce | 49 | 23.11 |
| Construction | 4 | 1.89 |
| Energy | 5 | 2.36 |
| Financial Services | 29 | 13.68 |
| Industry | 26 | 12.26 |
| Services | 53 | 25 |
| Transportation | 30 | 14.15 |
| Total | 212 | 100 |
| *N* | 212 | |

## Sample C




| Firm Type | Frequency | % |
|---|---|---|
| **Large** | | |
| Foreign | 33 | 19.41 |
| Domestic | 50 | 29.41 |
| Total | 83 | 48.82 |
| **Medium** | | |
| Foreign | 14 | 8.24 |
| Domestic | 10 | 5.88 |
| Total | 24 | 14.12 |
| **Small** | | |
| Foreign | 28 | 16.47 |
| Domestic | 35 | 20.59 |
| Total | 63 | 37.06 |
| Total | | |
| Foreign | 75 | 44.12 |
| Domestic | 95 | 55.88 |
| Total | 170 | 100 |
| *N* | 170 | |

| Sector | Frequency | % |
|---|---|---|
| Hospitality | 5 | 2.94 |
| Communications | 10 | 5.88 |
| Commerce | 35 | 20.59 |
| Construction | 5 | 2.94 |
| Financial Services | 20 | 11.76 |
| Industry | 30 | 17.65 |
| Services | 45 | 26.47 |
| Transportation | 20 | 11.76 |
| Total | 170 | 100 |
| *N* | 170 | |

## **Appendix 2** - Exchange rates 2007-2017 and percentage changes

| Year | EUR/MZN | % change | EUR/MZN | % change | ZAR/MZN | % change |
|---|---|---|---|---|---|---|
| 2007 | 35.49 | | 25.75 | | 3.67 | |
| 2008 | 35.65 | 0.43% | 24.24 | -5.88% | 2.97 | -19,00% |
| 2009 | 39.04 | 9.52% | 27.93 | 15.23% | 3.42 | 15.12% |
| 2010 | 45.49 | 16.53% | 34.45 | 23.36% | 4.73 | 38.15% |
| 2011 | 40.47 | -11.04% | 28.95 | -15.97% | 4.03 | -14.74% |
| 2012 | 36.6 | -9.56% | 28.4 | -1.92% | 3.46 | -14.02% |
| 2013 | 40.09 | 9.53% | 30.15 | 6.18% | 3.1 | -10.43% |
| 2014 | 41.64 | 3.85% | 31.41 | 4.18% | 2.9 | -6.56% |
| 2015 | 44.33 | 6.48% | 40.19 | 27.93% | 3.1 | 6.77% |
| 2016 | 70.16 | 58.26% | 63.64 | 58.37% | 4.42 | 42.69% |
| 2017 | 71.66 | 2.14% | 63.13 | -0.8% | 4.75 | 7.57% |

## **Appendix 3** - Size Criteria

| **Decree no. 70/2009 of 22 December** | |
|---|---|
| **Large companies:** | **Medium size companies:** |
| Total income and earnings equal to or greater than 1,275 million metical's; | Total income and earnings equal to or greater than 500 million metical's but less than 1,275 million metical's; |
| Total net assets equal to or greater than 1,275 million of metical's; | Total net assets greater than or equal to 500 million metical's or more but less than 1,275 million meticals; |
| Annual average number of 500 workers or more. | Annual average number of 250 or more but less than 500 workers |

## **Appendix 4** - Financial Analysis

| Sample A | roa | roe | nwc2 | lev2 | N employees |
|---|---|---|---|---|---|
| 2009 | 3.143721 | 5.238926 | 13.18149 | -.273668 | 107.5 |
| 2010 | 1.656321 | 3.25713 | 13.60002 | -.1889232 | 219 |
| 2011 | 1.998774 | 3.358812 | 13.49767 | -.2979052 | 272.5 |
| 2012 | 1.783391 | 3.114404 | 13.57879 | -.3106255 | 257 |
| 2013 | 1.528228 | 2.940748 | 13.60435 | -.3136288 | 200 |
| 2014 | 1.458615 | 2.937573 | 13.57309 | -.3122004 | 231.5 |
| 2015 | 1.758719 | 3.173195 | 13.81187 | -.2683483 | 227.5 |
| 2016 | 1.609438 | 2.865332 | 13.70803 | -.2475847 | 149 |
| 2017 | 1.589235 | -1.687765 | 14.17383 | -.3297068 | 243.5 |
| Total | 1.756995 | 3.129826 | 13.65115 | -.2906541 | 194 |
| *N* | 981 | | | | |

| Sample B | roa | roe | nwc2 | lev2 | N employees |
|---|---|---|---|---|---|
| 2010 | 1.729749 | 3.120601 | 13.96497 | -.3742214 | 210 |
| 2011 | 2.02419 | 3.262515 | 13.73225 | -.3834914 | 187 |
| 2012 | 1.759581 | 2.742877 | 13.94305 | -.3526964 | 223 |
| 2013 | 1.437056 | 2.406945 | 13.96107 | -.3306074 | 196 |
| 2014 | 1.296866 | 2.70538 | 13.39693 | -.3657135 | 148 |
| 2015 | 2.220287 | 3.432031 | 13.03184 | -.278409 | 154 |
| 2016 | 1.717395 | 2.950162 | 13.31383 | -.2520878 | 122 |
| 2017 | 1.581038 | -1.94611 | 14.25362 | -.3794787 | 200.5 |
| Total | 1.724551 | 2.822569 | 13.83859 | -.3532511 | 152 |
| *N* | 212 | | | | |

| Sample C | roa | roe | Average Collection | Average Payable | nwc2 | lev2 | N employees |
|---|---|---|---|---|---|---|---|
| 2013 | -3.206372 | -1.861329 | 4.167824 | 4.964962 | 19.6088 | .6402355 | 171.5 |
| 2014 | -3.523308 | -2.050559 | 4.09277 | 5.0318 | 19.21893 | .7050068 | 177.5 |
| 2015 | -2.899428 | -1.831029 | 4.259397 | 4.975286 | 19.21836 | .7227505 | 178 |
| 2016 | -2.995718 | -1.224849 | 4.730484 | 5.783371 | 19.72576 | .7527756 | 177 |
| 2017 | -2.953971 | -1.541462 | 4.834297 | 5.314583 | 19.41412 | .7111567 | 169.5 |
| Total | -3.151754 | -1.58023 | 4.585008 | 5.127578 | 19.5062 | .71029 | 172.5 |
| *N* | 162 | | | | | | |

Financial Ratios
Roa = Return on Assets = log(Net Income/ Total Assets)
Roe = Return on Equity = log(Net Income/Shareholders Equity)
nwc2 = Net Working Capital Turnover = log( Revenues/Net Working Capital)
lev2 = log(Total Liabilities/Total Assets)
Average Collection = log[(Accounts Receivable/Revenues)*365]
Average Payable = log[(Accounts Payable/Cost of Goods)*365]

**Appendix 5** - Sample A, the overall model with the logarithm of new investments over assets as dependent variable

| Dependent Variable<br>New Investments | (1)<br>ZAR/MZN | (2)<br>USD/MZN | (3)<br>EUR/MZN |
|---|---|---|---|
| Depreciation ZAR/MZN | 0.0876 | | |
| | (0.261) | | |
| Hospitality sector | 1.716** | 1.555** | 1.578** |
| | (0.691) | (0.731) | (0.720) |
| Communications sector | 0.0456 | -0.167 | -0.0325 |
| | (0.776) | (0.783) | (0.783) |
| Agriculture sector | 1.803*** | 1.757*** | 1.760*** |
| | (0.374) | (0.360) | (0.361) |
| Commerce sector | 1.311*** | 1.223*** | 1.265*** |
| | (0.426) | (0.422) | (0.422) |
| Construction sector | 1.130* | 1.114* | 1.156* |
| | (0.657) | (0.656) | (0.653) |
| Financial services sector | 0.351 | 0.256 | 0.339 |
| | (0.415) | (0.408) | (0.409) |
| Services sector | 0.514 | 0.444 | 0.492 |
| | (0.532) | (0.514) | (0.525) |
| Transportation sector | 1.558*** | 1.525*** | 1.538*** |
| | (0.466) | (0.454) | (0.454) |
| Medium sized firms | 2.181*** | 2.310*** | 2.231*** |
| | (0.395) | (0.381) | (0.390) |
| Small sized firms | 4.696*** | 4.839*** | 4.728*** |
| | (0.468) | (0.455) | (0.462) |
| Depreciation USD/MZN | | -0.615** | |
| | | (0.287) | |
| Depreciation EUR/MZN | | | -0.483 |
| | | | (0.305) |
| Constant | -10.21*** | -9.760*** | -9.770*** |
| | (0.425) | (0.429) | (0.445) |
| Observations | 294 | 294 | 294 |
| R-squared | 0.349 | 0.359 | 0.353 |

**Appendix 6** - T-test difference between Foreign and Domestic mean

| **2013** Diff = mean(Foreign) - mean(Domestic) | Difference | Ha: diff > 0 |
|---|---|---|
| ROA | 1.311164 | .0119555 |
| *N* | 20 | |
| ROE | 1.090103 | .0064853 |
| *N* | 21 | |
| Net Margin | 5.713566 | .0538227 |
| *N* | 24 | |

| **2014** Diff = mean(Foreign) - mean(Domestic) | Difference | Ha: diff > 0 |
|---|---|---|
| ROA | .778567 | .0221679 |
| *N* | 30 | |
| ROE | 1.084372 | .010142 |
| *N* | 27 | |

| **2015** Diff = mean(Foreign) - mean(Domestic) | Difference | Ha: diff > 0 |
|---|---|---|
| ROA | .5454315 | .0320288 |
| *N* | 20 | |

| **2017** Diff = mean(Foreign) - mean(Domestic) | Difference | Ha: diff > 0 |
|---|---|---|
| ROE | .9416551 | .02133 |
| *N* | 14 | |

**Appendix 7** - Sample B, the overall model with the logarithm of new investments over assets as dependent variable

| Dependent Variable<br>New Investments | (1)<br>ZAR/MZN | (2)<br>USD/MZN | (3)<br>EUR/MZN |
|---|---|---|---|
| Depreciation ZAR/MZN | -0.788*** | | |
| | (0.230) | | |
| Domestically-owned firms | -0.658** | -0.475 | -0.719** |
| | (0.257) | (0.398) | (0.314) |
| Depreciation ZAR/MZN* Domestically-owned firms | 0.151 | | |
| | (0.397) | | |
| Hospitality sector | 1.140*** | 1.096*** | 1.119*** |
| | (0.260) | (0.285) | (0.286) |
| Commerce sector | 0.168 | 0.172 | 0.180 |
| | (0.211) | (0.215) | (0.209) |
| Construction sector | 0.752* | 0.877 | 0.890* |
| | (0.438) | (0.544) | (0.529) |
| Financial services sector | -0.645** | -0.702** | -0.623* |
| | (0.319) | (0.313) | (0.318) |
| Depreciation USD/MZN | | 0.0152 | |
| | | (0.260) | |
| Depreciation USD/MZN *Domestically-owned firms | | -0.0960 | |
| | | (0.441) | |
| Depreciation EUR/MZN | | | -0.704*** |
| | | | (0.224) |
| Depreciation EUR/MZN *Domestically-owned firms | | | 0.233 |
| | | | (0.386) |
| Constant | -5.700*** | -6.105*** | -5.582*** |
| | (0.139) | (0.238) | (0.185) |
| Observations | 130 | 130 | 130 |
| R-squared | 0.201 | 0.106 | 0.158 |

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